

# Claims

- [c1] 1.A flushing and filtering system for an electroerosion machine, comprising:  
a work tank configured to maintain a workpiece therein;  
a first filtering stage for roughly filtering residue-containing machining liquid exiting from said work tank;  
and  
a second filtering stage for finely filtering roughly-filtered machining liquid exiting from said first filtering stage.
- [c2] 2.The flushing and filtering system of claim 1, further comprising:  
a first fluid return path to said work tank, said first fluid return path comprising a high-pressure return path for introducing finely-filtered machining fluid through an electrode included in the electroerosion machine; and  
a second fluid return path to said work tank, said second fluid return path introducing said finely-filtered machining fluid through a liquid adding inlet disposed at a lower portion of said work tank.
- [c3] 3.The flushing and filtering system of claim 2, wherein said first filtering stage further comprises:

a rough filtering device for receiving residue-containing machining liquid exiting from said work tank;  
a first filtering tank for holding said roughly-filtered machining liquid passed through said rough filtering device;  
and  
a rough filtering pump for transferring said roughly-filtered machining liquid from said first filtering tank to said second filtering stage.

[c4] 4.The flushing and filtering system of claim 3, wherein said second filtering stage further comprises:  
a fine filtering device for receiving said roughly-filtered machining liquid transferred from said first filtering tank;  
a fine filtering tank for holding said finely-filtered machining liquid passed through said fine filtering device;  
a high-pressure pump for supplying said finely filtered machining liquid through said first fluid return path; and  
a liquid-adding pump for supplying said finely filtered machining liquid through said second fluid return path.

[c5] 5.The flushing and filtering system of claim 2, wherein said first fluid return path is further configured so as to provide said finely filtered machining liquid to a guide bush, said guide bush having an end of said electrode disposed therethrough.

- [c6] 6.The flushing and filtering system of claim 2, wherein a bottom surface of said work tank is sloped so as to cause said residue-containing machining liquid to run toward an outlet proximate the bottom of said work tank.
- [c7] 7.The flushing and filtering system of claim 1, wherein said machining liquid is a dielectric material.
- [c8] 8.The flushing and filtering system of claim 1, wherein said machining liquid is an electrolyte material.
- [c9] 9.The flushing and filtering system of claim 4, further comprising a pressure sensor within said first fluid re-turn path.
- [c10] 10.The flushing and filtering system of claim 1, wherein said work tank is configured to keep said workpiece completely submerged within said machining fluid.
- [c11] 11.The flushing and filtering system of claim 5, wherein work tank is further configured to spray machining fluid on exterior surfaces of said guide bush and said work-piece.
- [c12] 12.The flushing and filtering system of claim 11, further comprising a nozzle configured for spraying machining fluid on said exterior surfaces of said guide bush and

said workpiece, said nozzle included within said second fluid return path.

[c13] 13.A method for flushing and filtering an electroerosion machine, comprising:  
passing a residue-containing machining liquid through a first filtering stage for roughly filtering said residue-containing machining liquid, said residue-containing liquid exiting from a work tank configured to maintain a workpiece therein; and  
passing roughly-filtered machining liquid exiting from said first filtering stage into a second filtering stage for fine filtering of said roughly-filtered machining liquid.

[c14] 14.The method of claim 13, further comprising:  
returning finely-filtered machining fluid to said work tank through a first fluid return path, said first fluid return path comprising a high-pressure return path for introducing said finely-filtered machining fluid through an electrode included in the electroerosion machine; and  
returning said finely-filtered machining fluid to said work tank through a second fluid return path, said second fluid return path introducing said finely-filtered machining fluid through a liquid adding inlet disposed at a lower portion of said work tank.

[c15] 15.The method of claim 14, wherein said first filtering

stage further comprises:

a rough filtering device for receiving residue-containing machining liquid exiting from said work tank;

a first filtering tank for holding said roughly-filtered machining liquid passed through said rough filtering device; and

a rough filtering pump for transferring said roughly-filtered machining liquid from said first filtering tank to said second filtering stage.

[c16] 16.The method of claim 15, wherein said second filtering stage further comprises:

a fine filtering device for receiving said roughly-filtered machining liquid transferred from said first filtering tank;

a fine filtering tank for holding said finely-filtered machining liquid passed through said fine filtering device;

a high-pressure pump for supplying said finely filtered machining liquid through said first fluid return path; and

a liquid-adding pump for supplying said finely filtered machining liquid through said second fluid return path.

[c17] 17.The method of claim 14, wherein said first fluid return path is further configured so as to provide said finely filtered machining liquid to a guide bush, said guide bush having an end of said electrode disposed therethrough.

- [c18] 18.The method of claim 14, wherein a bottom surface of said work tank is sloped so as to cause said residue-containing machining liquid to run toward an outlet proximate the bottom of said work tank.
- [c19] 19.The method of claim 13, wherein the electroerosion machine includes a dielectric material passed through a gap between the tool electrode and workpiece.
- [c20] 20.The method of claim 13, wherein the electroerosion machine includes an electrolyte passed through a gap between the tool electrode and workpiece.
- [c21] 21.The method of claim 16, further comprising a pressure sensor within said first fluid return path.
- [c22] 22.The method of claim 13, wherein said work tank is configured to keep said workpiece completely submerged within said machining fluid.
- [c23] 23.The method of claim 13, wherein said work tank is further configured to spray machining fluid on exterior surfaces of said guide bush and said workpiece.
- [c24] 24.The method of claim 23, further comprising spraying said machining fluid on said exterior surfaces of said guide bush and said workpiece through a nozzle, said nozzle included within said second fluid return path.

